



Tool for Alteryx[®] Designer

Incisive Software Corporation
900 E Hamilton Avenue, Suite 440
Campbell, CA 95008
www.incisive.com
@SpreadsheetMgmt

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GETTING STARTED

This user guide describes support information, documentation conventions, system requirements, installation instructions and usage instruction to the Incisive Xcellerator Tool for Alteryx® Designer.

CONTACTING SUPPORT

For Help With	Contact
Technical Support	Email: support@incisive.com Phone: (408) 660-3090
Sales Inquiries	Email: sales@incisive.com
Product Information	http://www.incisive.com/

CONVENTIONS

This user guide uses the following formatting conventions.

Format	Description
Bold	Represents buttons, tab labels, and menu selections. For example: Click Help .
[Button]	Square brackets are used in tables to indicate that the command is a button.

Note: If the bookmarks for this Portable Document Format (PDF) file do not open in the left navigation panel on start up, choose **View | Navigation Panels | Bookmarks** from the reader toolbar.

INSTALLATION AND SETUP

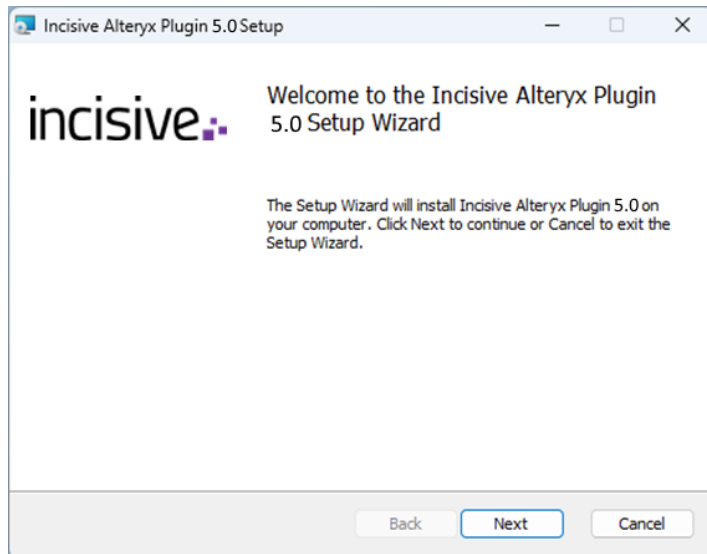
SYSTEM REQUIREMENTS

The Xcellerator Tool for Alteryx Designer is a plugin for use with Alteryx Designer. To install Xcellerator Tool for Alteryx Designer, your system must meet the following requirements:

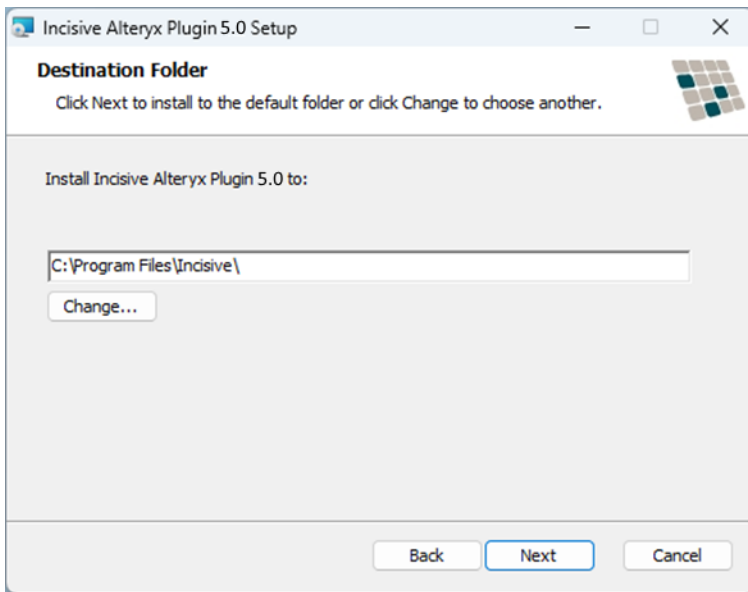
System Requirements
Alteryx Designer 2023.1
Microsoft .NET Framework 4.8+
Microsoft® Office Excel 2016/2019/365 64-bit
Microsoft Windows® 10, Microsoft Windows® 11
4 Core 2.5 GHz or higher (minimum)
8 GB RAM (minimum)
500 GB Disk Space (minimum)

INSTALLING THE XCELLERATOR TOOL FOR ALTERYX DESIGNER

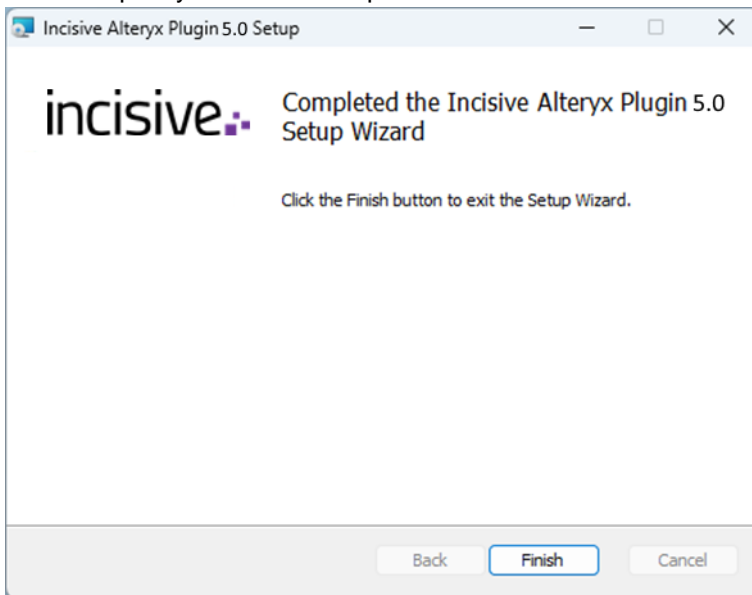
1. Double click the executable filename or icon.



2. When the installer starts, Click **Next** on the first installation window.
3. On the End-User License Agreement, view the agreement and click the box to indicate acceptance of the terms of the agreement. Click **Next**.



4. Specify a folder or keep the default folder for the installation, then click **Next**.

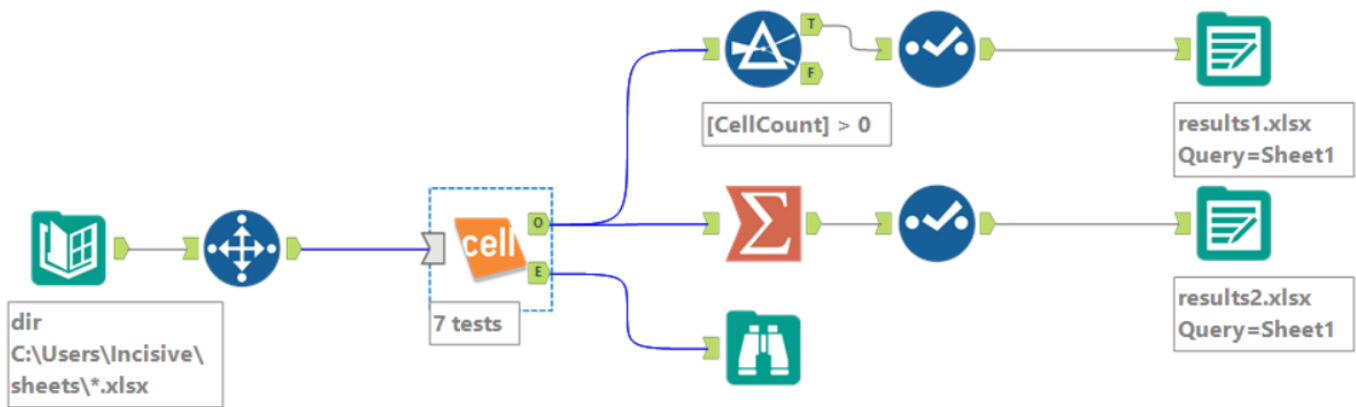


5. Click **Finish** once the installation is complete.

INTRODUCING THE XCELLERATOR TOOL FOR ALTERYX DESIGNER

OVERVIEW

The Xcellerator tool enables you to harness the power of Xcellerator to analyze your Excel workbooks from within an Alteryx® workflow. Xcellerator identifies and helps to resolve errors, mitigate risk, and provide insight into spreadsheet construction. Using the Xcellerator tool in your workflow helps you to automate testing and risk analysis of your Excel assets.



In this sample workflow, the Xcellerator tool is configured to run seven Xcellerator tests on every Excel workbook in the specified directory. The results of the tests are further processed by other Alteryx Designer tools and then written to Excel workbooks for review.

Using the Xcellerator tool for Alteryx Designer within a workflow generally follows this pattern:

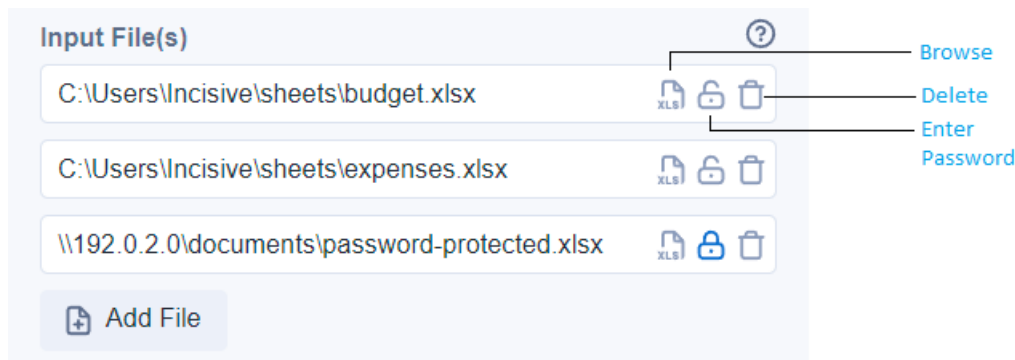
1. Provide input Excel workbooks to the Xcellerator tool.
2. Select the Xcellerator tests you would like to run on your assets.
3. Process or analyze the output of the Xcellerator tool, including any results from Xcellerator tests or errors encountered during processing.

Using the Xcellerator tool within Alteryx Designer provides as much flexibility and complexity as you require for automating your environment.

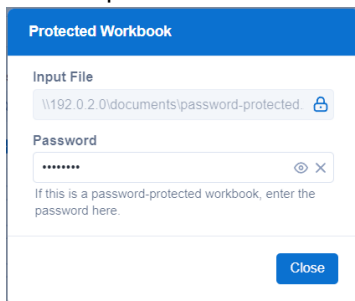
SELECTING FILES

There are two ways to provide the Excel workbooks that you would like to test and analyze to the Xcellerator tool. The **Input File(s)** section within the Xcellerator tool configuration window allows you to explicitly browse and select any number of files. The **Input Field** section allows you to specify how the tool receives the file names from upstream tools in the workflow. You can use either method, or both at the same time, within a single Xcellerator tool.

INPUT FILE(S)

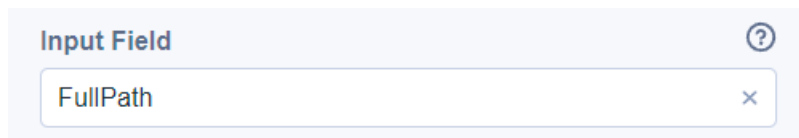


- In the configuration window, click the **Add File** button to add one or more Excel workbook files to the list.
- Click the Browse icon to use a file browser to locate and select a file, or type in the full path to the Excel file.
- If this is a protected workbook, click the Enter Password icon to enter the password for this workbook.
 - When a password is entered correctly, the icon changes from unlocked to locked.



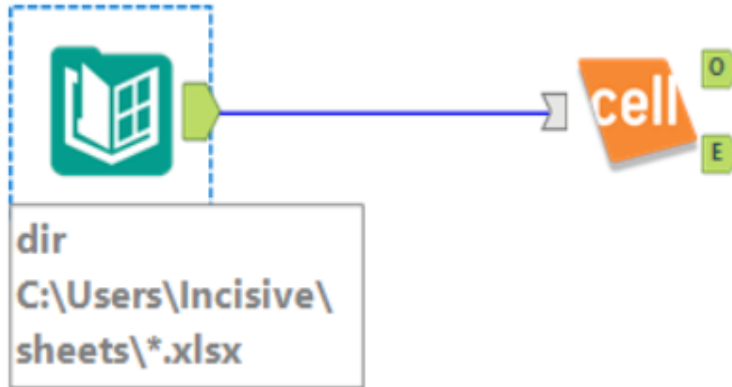
- Click the Delete icon next to an input file to remove it.
- Any number of files, or none at all, can be added in this section, and any blank entries are ignored.

INPUT FIELD



- Connect a tool that provides a data stream, such as a Directory tool, to the input anchor of the Xcellerator tool. The tool can be located anywhere prior to the Xcellerator tool within the workflow.
- Enter the field of the incoming data stream that will be used to discover file names, or select the field from the dropdown list.

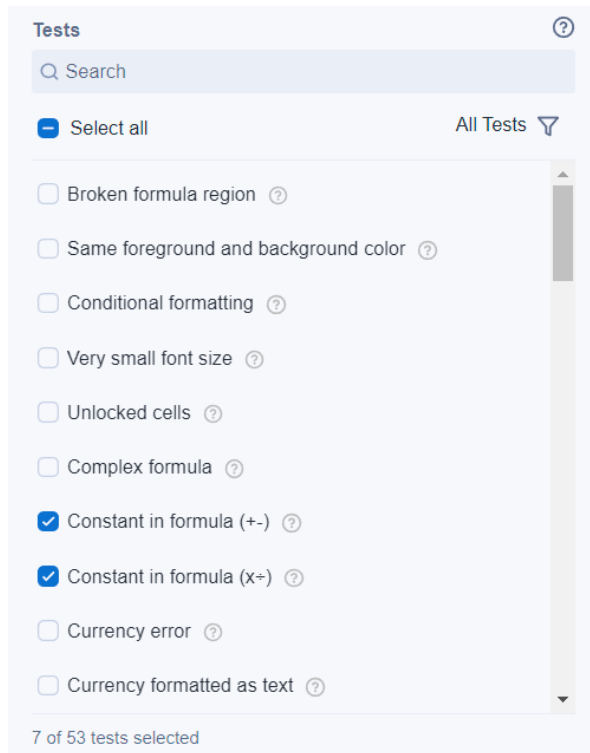
- An upstream tool must be connected to the input anchor for the dropdown list to be populated.
- If a tool is connected and its fields cannot be determined, try running the workflow once.
- The selected field must contain the full path to Excel workbooks.



- The built-in Directory tool is the recommended way to specify a large number of Excel workbooks dynamically.
 - Add an **In/Out** → **Directory** tool and configure it to find your Excel workbooks.
 - Connect the Directory tool to the Xcellerator tool as shown and select `FullPath` in the Input Field.

SELECTING TESTS

Xcellerator includes 53 tests to help you analyze and validate your spreadsheets. For a complete description, causes, and recommended actions for every available test, see the *Xcellerator User Guide* for more information.



- Select any number of Xcellerator tests to run on the specified Excel workbooks.
- Use the Search bar to quickly filter tests by name.
- Click the Select all checkbox to select or deselect the desired tests from the currently filtered tests.
- Click the Filter Category button to filter tests by category.
 - Formula Errors — These tests are designed to find several of the most common types of formula errors.
 - Risks — These tests are designed to find formulas that pose risks to the spreadsheet because of their difficulty to maintain or understand.
 - Hidden — These tests will mark hidden data in a spreadsheet that can pose problems when searching for potential errors, or when preparing a spreadsheet for distribution.
 - Informational — These tests find information that is useful for error checking, and can be difficult to find with Excel alone.
- Hover over a Help icon for a test to see a short description of the test.
- Click the Help icon for a test to bring up a dialog window with more detailed descriptions about the test.

The following tests are selected by default:

Test	Category	Description
"#" Error source	Formula Errors	This test finds the source of chains of errors, for example #REF!.
Data in formula range	Formula Errors	This test finds data cells that may have overwritten formulas.
Formula fails to cover area	Formula Errors	This test finds formulas that reference part, but not all, of a group of similar cells. This is usually unintended.
Inconsistent formula	Formula Errors	Finds formulas that are unexpectedly different than those in neighboring cells.
Constant in formula (+-)	Risks	This test finds formulas that contain hard-coded constants in them. Constants embedded in formulas are often difficult to update.
Constant in formula (x÷)	Risks	This test finds formulas that contain hard-coded constants in them. Constants embedded in formulas are often difficult to update.
Misleading custom formatting	Risks	This test finds cells with custom formatting that changes the visible cell value.

OUTPUT

The Xcellerator tool has 2 output anchors.

- **O** — The "O" (Output) anchor contains data for all files that were successfully analyzed.
- **E** — The "E" (Errors) anchor contains data for all files that Xcellerator failed to analyzed.

The Xcellerator tool outputs the following metadata to both anchors.

Field	Type	Size	Description	Example
FullPath	V_WString	32767	The full path to the Excel workbook	"C:\Users\Incisive\sheets\my-workbook.xlsx"
Directory	V_WString	32767	The directory of the Excel workbook	"C:\Users\Incisive\sheets"
FileName	V_WString	260	The file name of the Excel workbook	"my-workbook.xlsx"
TestID	V_String	260	The ID of the test that was run	"broken_region_heuristic"
TestName	V_WString	260	The name of the test that was run	"Broken formula region"
TestCategory	V_WString	260	The category of the test that was run	"Formula Errors"
TestDescription	V_WString	32767	A description of the test that was run	"Finds formula regions that are inconsistently sized compared to nearby formula regions."
Range	V_WString	260	The range that triggered the test	"'Sheet1'!A1:C4"
CellCount	Int32	4	The number of cells that triggered the test	62
Message	V_WString	32767	The reason why the test was triggered	"This formula is inconsistent with surrounding formulas."

If a test does not return any results, output is still provided. In this case, CellCount is 0, and Range and Message is Null.

TestID	TestName	TestCategory	TestDescription	Range	CellCount	Message
[TestID]	[TestName]	[TestCategory]	[TestDescription]	Null	0	Null

If the Xcellerator tool is configured to include metadata, then metadata rows are output with the following format:

TestID	TestName	TestCategory	TestDescription	Range	CellCount	Message
[MetadataID]	[MetadataID]	"Metadata"	Null	Null	-1	[MetadataValue]


If Xcellerator encounters an issue trying to process a file (for example, the file does not exist), then a row is output with the following format:

TestID	TestName	TestCategory	TestDescription	Range	CellCount	Message
"Error"	"Error"	"Error"	Null	Null	-1	[ErrorMessage]

SETTINGS

Click the **Settings** button at the top of the configuration window to open the Settings dialog where additional Xcellerator settings are configured. Click the **Reset** button at the bottom of the Settings dialog to reset all settings to their default values.

Timeout

 sec 

How long in seconds Xcellerator is allowed to run per file.

- How long in seconds Xcellerator is allowed to run per file.
- If omitted, there is no timeout limit.
- If any file exceeds the timeout, the Xcellerator Tool outputs an error.

Metadata

☐ Include metadata

Include or exclude metadata in the output.

- Whether to include or exclude metadata in the output.
- The Xcellerator tool outputs metadata.

Metadata includes the following properties that are generated during the analysis of a file:

- RiskScore
- TotalFormulas
- CellsUsed
- ArrayFormulas
- CellsReferencingName
- CellsReferencingExternalWB
- StartScanTime
- TotalUniqueFormulas
- BlankCellsInUsedRange
- TotalSheets
- NumberRereferencedNamedRanges
- NumberReferencedWB

USEFUL TECHNIQUES

The following sections describe some useful techniques when using the Xcellerator tool for Alteryx Designer.

CACHING RESULTS

When many files and many tests are selected, the Xcellerator tool can take some time to generate results. When developing a workflow using the Xcellerator tool, it is recommended to cache results to speed up workflow execution.

1. Right click the Xcellerator tool and select "Cache and Run Workflow".
2. The workflow executes, and Alteryx Designer caches the results of the Xcellerator tool.

A blue bubble appears around the Xcellerator tool indicating that the results are cached. All upstream tools are also cached.

The downstream Summary tool is not cached and can be modified freely.

3. Subsequent runs of the workflow now use the cached results of the Xcellerator tool, speeding up the execution.
4. Right click the Xcellerator tool and select "Clear Cache" to clear the cache.

FILTERING RESULTS

The Xcellerator tool can output rows containing results for triggered tests, results for untriggered tests, error messages for files, and metadata for files as described in Output. The following filters can be used with the Preparation → Filter tool to differentiate the output:

Category	Filter	Description
Substantial Rows	<code>[CellCount] >= 0</code>	Get all the rows that represent successfully run tests, triggered or untriggered. Use this to filter out all Error rows and Metadata rows.
Nonempty Rows	<code>[CellCount] > 0</code>	Get all the rows that represent triggered tests.
Empty Rows	<code>[CellCount] = 0</code>	Get all the rows that represent untriggered tests. This will not include Error rows and Metadata rows.
Metadata Rows	<code>[TestCategory] = "Metadata"</code>	Get all the rows that represent metadata about a file that was

		analyzed by Xcellerator, if the "Metadata" setting is set to include metadata. For these rows, the <code>TestID</code> field contains the ID of the metadata, and the <code>Message</code> field contains the value of the metadata.
Error Rows	<code>[TestCategory] = "Error"</code>	Get all the files that Xcellerator was unable to process. For these rows, the <code>Message</code> field contains the error message.

PARSING THE RANGE

The Range column returns a range of cells in the format `sheetName!startCell:endCell`.

- `sheetName` is the escaped sheet name, surrounded by quotes. For example, 'The "Big" Sheet'.
- `startCell` and `endCell` are A1-style references. If the range represents a single cell, then `endCell` is omitted. For example, A1:C4 or D2.

If you need access to any of these values (for example, grouping results by sheet name), then it is recommended to use the RegEx and Formula tools to properly parse the Range column.



Column to Parse

Range

Format to Convert

Regular Expression ?

^(('?:[^\"]|")+)!([A-Z]+[0-9]+)(?::([A-Z]+[0-9]+))?\$

☒ Case Insensitive

Output

Output Method

Parse

Output Columns

Name	Type	Size	Expression
SheetName	V_WString	260	('(?:[^\"] ")+')
StartCell	V_WString	260	([A-Z]+[0-9]+)
EndCell	V_WString	260	([A-Z]+[0-9]+)

1. Add a Parse → RegEx tool after the Xcellerator tool.

This splits the Range column into its 3 parts.

2. Column to Parse

Select the Range column.

3. Format to Convert

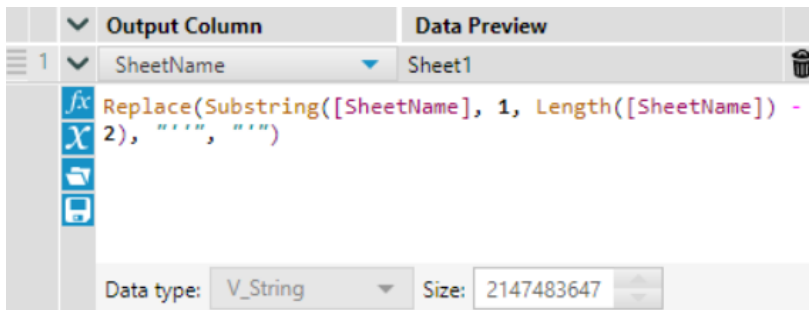
For the Regular Expression, enter

^(('?:[^\"]|")+)!([A-Z]+[0-9]+)(?::([A-Z]+[0-9]+))?\$

4. Output

Set the Output Method to Parse.

Name the 3 Output Columns to be SheetName, StartCell, and EndCell.



5. Add a Preparation → Formula tool after the RegEx tool.

This handles unescaping the sheet name.

6. Output Column

Select the `SheetName` column.

7. Formula

Enter

```
Replace(Substring([SheetName], 1, Length([SheetName]) - 2), "'", "'")
```

8. Optionally, add another formula to transform the `EndCell` column with

```
IIF(IsEmpty([EndCell]), [StartCell], [EndCell])
```

This will set `EndCell` equal to `StartCell` if it is omitted.

ERRORS

XCELLERATOR ERRORS

These errors occur when Xcellerator is unable to process a file. When this happens, a row is output with TestCategory set to "Error" and Message set to the error message as described in Output.

PATH DOES NOT EXIST OR IS NOT A FILE

This error occurs when Xcellerator cannot find the file specified.

- Check that Input File(s) is set correctly, and that all input files exist on your system.
- Check that Input Field is set to the correct field. If you are using the Directory Tool, set the Input Field to FullPath.

FILE IS NOT A VALID EXCEL FILE

This error occurs when Xcellerator runs on a file that is not a valid Excel workbook.

- Check that the input files have the extension `.xl*` (for example `.xlsx`, `.xlsm`). If you are using the Directory Tool, set the File Specification option to `*.xl*`.

INVALID PASSWORD

This error occurs when Xcellerator is unable to open a password-protected workbook.

- Check that the correct passwords are supplied for any password-protected files (See the section [Input File\(s\)](#) for more information).
- When files are discovered using the Input Field configuration, any password-protected files must be individually specified with the correct password in the Input File(s) section.

XCELLERATOR TIMED OUT

This error occurs when Xcellerator is unable to finish processing a file. Xcellerator has a default timeout of 10 minutes per file, but may require more time for very large files.

- Increase the allotted timeout time as described in Settings.

LICENSE NEEDED FOR HOST ID = ...

An error occurred when attempting to use the Xcellerator Tool without a valid license. Please contact support for more information.

TOOL ERRORS

These errors may occur when Alteryx Designer encounters unexpected behavior.

ENCOUNTERED ERROR PUSHING RECORDS

This error may occur when the Xcellerator tool has no files to process.

- Add input files as described in Selecting Files.
- Check that Input Field is set to the correct field. If using the Directory Tool, set the Input Field to FullPath.

<CLASS 'FileNotFoundException': [WinError 2] The system cannot find the file specified

<CLASS 'OSError': [WinError 193] %1 is not a valid Win32 application

These errors may occur when the Xcellerator tool cannot find the Xcellerator program on your system, or if the path to the Xcellerator program was misconfigured.

- Check that Xcellerator has been successfully installed on your system.
- Check that the PATH environment variable contains the path to the installation location of Xcellerator.
- Otherwise, use the "Xcellerator Path" configuration as described in Advanced.

ADVANCED

This section details advanced Xcellerator settings not used in most circumstances. Access these settings by clicking Show Advanced in the Settings dialog.

Xcellerator Path

Automatic 

Path to Xcellerator.exe, otherwise the PATH environment variable is used.

- Path to the Xcellerator.exe executable.
- If omitted, the PATH environment variable is used, which should have been defined during installation.

Output Folder

Automatic 

Folder in which Xcellerator will write results, otherwise temporary files are used.

- Folder where Xcellerator writes results. Use this to inspect the Xcellerator output outside of the Alteryx Designer workflow.
- Output files will be named {workbookName}.json.
- If omitted, temporary files managed by Alteryx Designer are used.

Multiprocessing



Automatic

processes 

Enable or disable multiprocessing.

- Enable or disable multiprocessing, and specify how many processes can run in parallel.
- If the number of processes is omitted, the default is the number of cores available.

Log Level

Information 

Specify the desired level of detail for the logging output.

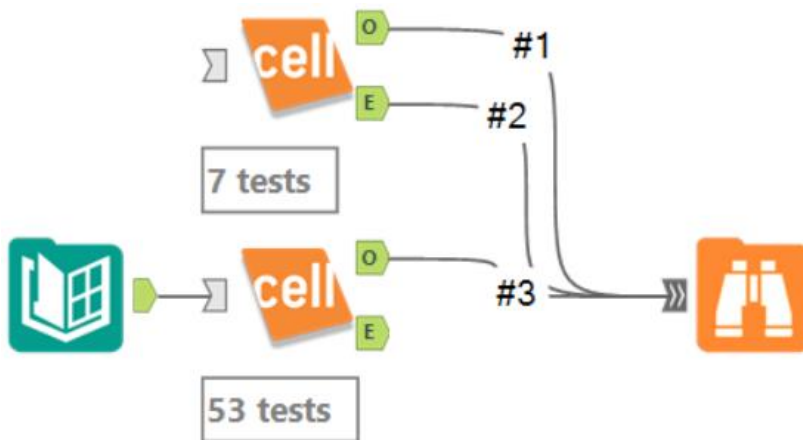
- Set the level of information for logging. Log information is sent to the Alteryx Designer Results window and also stored in the Xcellerator log files. Each log level has an increasing amount of information. The Error log level stores the least amount of information in the logs, and Verbose stores the most information.
- The default setting of Information is sufficient for most purposes. The available setting levels are:
 - Error
 - Warning
 - Information
 - Verbose

XCELLERATOR BROWSE

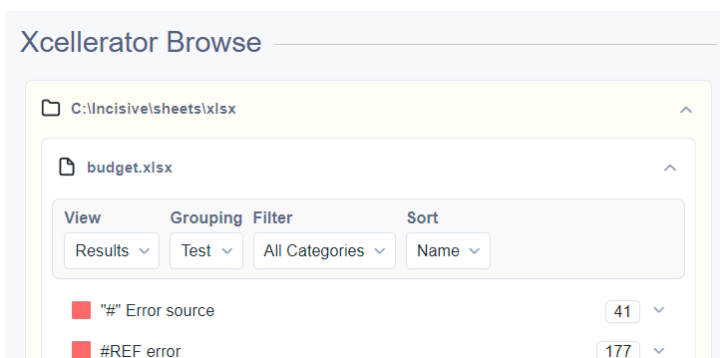
USAGE

The Xcellerator Browse tool behaves similarly to the built-in Browser tool.

1. Connect an Xcellerator tool to the Xcellerator Browse tool.



- Connect any number of Xcellerator tools to the Xcellerator Browse tool.
 - Both the **O** and **E** output anchors can be connected.
2. Run the workflow.
 - Click the “Run Workflow” button, or press Ctrl+R to run the workflow.
 3. Browse results in the Xcellerator Browse tool’s configuration window.



- The Xcellerator Browse tool collects and interprets data from all connections.
- Expand a file to view its results.
 - Select “View: Results” to see which ranges triggered which tests and the reason why.
 - Select “View: Statistics” to see the total counts for how many times the tests were triggered.
- The Errors section lists all errors.